



<110> VALENTA, Rudolf et al.

<120> NON-ANAPHYLACTIC FORMS OF GRASS POLLEN PH1 P 6 ALLERGEN AND THEIR USE

<130> 1614-0244p

<140> 09/696,169

<141> 2000-10-26

<160> 21

<170> PatentIn version 3.0

<210> 1

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer derived from Phleum pratense

<400> 1

gggaattcca tatgggaaag gccacgacc

29

<210> 2

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer derived from Phleum pratense

<400> 2

cgggttaccc tagtggtgg ggtgggtgg gggcgccttt gaaac

45

<210> 3

<211> 29

<212> DNA

<213> Artificial Sequence

<220>

<223> Primer derived from Phleum pratense

<400> 3

gggaattcca tatggcagac aagtataag

29

<210> 4

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

1
24

<223> Primer derived from Phleum pratense

<400> 4

ccggaattcc tagtggtggt ggtggtggtg cgcgcgggc ttgac

45

<210> 5

<211> 4

<212> PRT

<213> Phleum pratense

<400> 5

Gly Lys Ala Thr

1

<210> 6

<211> 4

<212> PRT

<213> Phleum pratense

<400> 6

Lys Ala Thr Thr

1

<210> 7

<211> 4

<212> PRT

<213> Phleum pratense

<400> 7

Lys Tyr Lys Thr

1

<210> 8

<211> 138

<212> PRT

<213> Phleum pratense

<400> 8

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala
35 40 45

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
50 55 60

Phe Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
65 70 75 80

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
85 90 95

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
100 105 110

Ala Phe Val Leu His Phe Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr
115 120 125

Pro Glu Val His Ala Val Lys Pro Gly Ala
130 135

<210> 9
<211> 750
<212> DNA
<213> Phleum pratense

<400> 9
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atgttcctcg ctgttgcgt ttttgtggc ttggccacat ccccaactgc agagggaggg 120
aaggccacga ccgaggagca aaaattgatc gaggacatca atgccagctt tagggcggcc 180
atggccacca ctgctaacgt ccctccagca gacaagtata agacattcga agccgccttc 240
acggtgtcct caaagagaaa cctcgctgac gccgttcaa aggcgcccc gctggtcccc 300
aagctcgatg aagtctacaa cgccgcctac aatgctgccg atcatgccgc cccagaagac 360
aagtatgaag ctttcgtcct tcactttcc gaggctctcc acatcatcgc cggtaaaaa 420
gaggtccacg ctgtcaagcc cggcgcttag ttgttcagca cggtaagat ctttgacagc 480
gtcgctgcca ccggcgctgc agccaacact gccagtggct aaaaaattcg actagctcct 540
tcatacaatg aatacacatg tatcattcaa acatactact gtacagtatg tgcacatgac 600
agccgcgagc attttttta tgattaatct tttatacatg ggcgtgatcg agcgtgtgca 660
tatgtgtaat aattaatttt ttatgttgc ttgaaattgt aatcctgata agaaatgcga 720
ttaagtccat ttatgaaaaa aaaaaaaaaaa 750

<210> 10
<211> 571

<212> DNA
<213> Phleum pratense

<400> 10
ccaacgcacg agtagcaatg gcagcgcaca agttcatggc ggcgatgttc ctcgctgttgc
ccgttgtgtt gggcttggcc acatccccaa ctgcagaggg agggaaaggcc acgaccgagg
agcaaaaatt gattgaggac gtcaatgcca gcttagggc ggccatggcc accactgcta
acgtccctcc agcagacaag tataagacat tcgaagccgc ctgcacggtg tcctcaaaga
gaaacctcgc tgacgcgtt tcaaaggcgc cccagctggc ccccaagctc gatgaagtct
acaacgcgcgc ctacaatgct gccgatcatg ccgcggcaga agacaagtat gaagccttcg
tccttcactt ttccgaggct ctccgtatca tcgcccgtac ccccgagggtt cacgctgtca
agcccgccgc gtagttgttc agcacggta agatcctga cagcgtcgct gccaccggcg
ctgcagccaa cactgccagt ggctaaaaaaaaa ttgcacttagc tccttcatac aatgaataca
catgtatcat tcaaaaaaaaaaaaaaaa a 571

<210> 11
<211> 647
<212> DNA
<213> Phleum pratense

<400> 11
accgaggagc aaaaattgtat cgaggacgatc aatgcacgtt ttagggcggc catggccacc
actgctaacg tccctccagc agacaagtat aagacattag aagccgcctt cacgggtgtcc
tcaaagagaa acctcgctga cggcgctctca aaggcgcccc agctcgccc caagctcgat
gaagtctaca acgcccgccta caatgctgcc gatcatgccc ccccagaaga caagtatgaa
gccttcgtcc ttcaacttttc cgaggctctc cgtatcatcg ccggtaaaaaa cgaggtccac
gctgtcaagc cccgcgcgtta gttgttcagc acggtaaga tccttgacag cgtcgctgcc
accggtgctg cagccaacac tgccagtgcc taaaaagttc gaccagctct ttcatacat
gaatacacat gtatcttca aacatactac tgtacagtat gtgcgtgacc tagcggcgag
catttttttt atgattaatc ttttatacat gggcgtgatc gagcgtgtgc atatgtgtaa
taattaattt ctttatttga ttgaaatttga taatcctgat aagaaatgcg attaagtcca
tttatgaaat atagatggtc cgtcggttatt taaaaaaaaaaaaaaa aaaaaaaa 647

<210> 12
<211> 572
<212> DNA

<213> Phleum pratense

<400> 12

gcagacaagt ataagacatt cgaagccgcc ttcacggtgt cctcaaagag aaacctcgct	60
gacgcccgttt caaaggcgcc ccagctggtc cccaaagctcg atgaagtcta caacgcccgc	120
tacaatgctg ccgatcatgc cgccccagaa gacaagtatg aagccttcgt ctttacttt	180
tccgaggctc tccacatcat cgccggtaacc cccgaggtcc acgctgtcaa gccggcg	240
tagttgttca gcacggtcaa gatccttgac agcgtcgctg ccaccggcgc tgca	300
actgccagt gctaaaaaat tcgacttagct cttcataca atgaatacac atgtatcatt	360
caaacatact actgtacagt atgtgcatac cctagcggcg agcattttt ttatgattaa	420
tctttatac atgggcgtga tcgagcgtgt gcataatgtgt aataattaat tttttat	480
gattgaaat tgtaatcctg ataagaaatg cgattaagtc catttaaaaa aaaaaaaaaa	540
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aa	572

<210> 13

<211> 474

<212> DNA

<213> Phleum pratense

<400> 13

tcaaaggcgc cccagctggt ccccaagctc gatgaagtct acaacgcccgc ctacaatgct	60
gccgatcatg cggccccaga agacaagtat gaagccttcg tccttcactt ttccgaggct	120
ctccacatca tcgcccgtac ccccgaggta cacgctgtca agccggcgc gtagttgttc	180
agcacggta agatccttga cagcgtcgct gccaccggcg ctgcagccaa cactgccagt	240
ggctaaaaaaa ttgcacttagc tccttcatac aatgaataca catgtatcat tcaaacatac	300
tactgtacag tatgtgcatac acctagcggc gagcattttt ttatgatta atctttata	360
catgggcgtg atcgagcgtg tgcataatgtgt taataattaa tttttat ttgattgaaa	420
ttgtaatcct gataagaaat gcgattaagt ccatttatga aaaaaaaaaa aaaa	474

<210> 14

<211> 554

<212> DNA

<213> Phleum pratense

<400> 14

cagctggtcc ccaagctcga tgaagtctac aacgcccgc acaatgctgc cgatcatgcc	60
gccccagaag acaagtatga agccttcgtc cttcactttt ccgaggctct ccacatcatc	120

gccggtaccc	ccgaggtcca	cgcgtcaag	cccggcgcgt	agttgttcag	cacggtaag	180
atcctgaca	gcgtcgctgc	caccggcgct	gcagccaaca	ctgccagtgg	ctaaaaatt	240
cgactagctc	cttcatacaa	tgaatacaca	tgtatcattc	aaacatacta	ctgtacagta	300
tgtcatgac	ctagcggcga	gcatttttt	tatgattaat	cttttataca	tggcgtgat	360
cgagcgtgtg	catatgtgt	ataattaatt	ttttattttg	atttgaattt	gtaatcctga	420
taagaaatgc	gattaagtcc	atttatgaaa	tatagatggt	ctgtcggtat	ttaaaaaaaaa	480
aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	540
aaaaaaaaaa	aaaa					554

<210> 15
 <211> 138
 <212> PRT
 <213> Phleum pratense

 <400> 15

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
 1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
 20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Ile Asn Ala Ser Phe Arg Ala
 35 40 45

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
 50 55 60

Phe Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
 65 70 75 80

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
 85 90 95

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
 100 105 110

Ala Phe Val Leu His Phe Ser Glu Ala Leu His Ile Ile Ala Gly Thr
 115 120 125

Pro Glu Val His Ala Val Lys Pro Gly Ala
130 135

<210> 16
<211> 138
<212> PRT
<213> Phleum pratense

<400> 16

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala
35 40 45

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
50 55 60

Phe Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
65 70 75 80

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
85 90 95

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
100 105 110

Ala Phe Val Leu His Phe Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr
115 120 125

Pro Glu Val His Ala Val Lys Pro Gly Ala
130 135

<210> 17
<211> 106
<212> PRT
<213> Phleum pratense

<400> 17

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala
1 5 10 15

Ala Met Ala Thr Thr Ala Asn Val Pro Pro Ala Asp Lys Tyr Lys Thr
20 25 30

Leu Glu Ala Ala Phe Thr Val Ser Ser Lys Arg Asn Leu Ala Asp Ala
35 40 45

Val Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn
50 55 60

Ala Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu
65 70 75 80

Ala Phe Val Leu His Phe Ser Glu Ala Leu Arg Ile Ile Ala Gly Thr
85 90 95

Pro Glu Val His Ala Val Lys Pro Gly Ala
100 105

<210> 18

<211> 80

<212> PRT

<213> Phleum pratense

<400> 18

Ala Asp Lys Tyr Lys Thr Phe Glu Ala Ala Phe Thr Val Ser Ser Lys
1 5 10 15

Arg Asn Leu Ala Asp Ala Val Ser Lys Ala Pro Gln Leu Val Pro Lys
20 25 30

Leu Asp Glu Val Tyr Asn Ala Ala Tyr Asn Ala Ala Asp His Ala Ala
35 40 45

Pro Glu Asp Lys Tyr Glu Ala Phe Val Leu His Phe Ser Glu Ala Leu
50 55 60

His Ile Ile Ala Gly Thr Pro Glu Val His Ala Val Lys Pro Gly Ala
65 70 75 80

<210> 19

<211> 57

<212> PRT

<213> Phleum pratense

<400> 19

Ser Lys Ala Pro Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn Ala
1 5 10 15

Ala Tyr Asn Ala Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu Ala
20 25 30

Phe Val Leu His Phe Ser Glu Ala Leu His Ile Ile Ala Gly Thr Pro
35 40 45

Glu Val His Ala Val Lys Pro Gly Ala
50 55

<210> 20

<211> 53

<212> PRT

<213> Phleum pratense

<400> 20

Gln Leu Val Pro Lys Leu Asp Glu Val Tyr Asn Ala Ala Tyr Asn Ala
1 5 10 15

Ala Asp His Ala Ala Pro Glu Asp Lys Tyr Glu Ala Phe Val Leu His
20 25 30

Phe Ser Glu Ala Leu His Ile Ile Ala Gly Thr Pro Glu Val His Ala
35 40 45

Val Lys Pro Gly Ala
50

<210> 21

<211> 57

<212> PRT

<213> Phleum pratense

<400> 21

Met Ala Ala His Lys Phe Met Val Ala Met Phe Leu Ala Val Ala Val
1 5 10 15

Val Leu Gly Leu Ala Thr Ser Pro Thr Ala Glu Gly Gly Lys Ala Thr
20 25 30

Thr Glu Glu Gln Lys Leu Ile Glu Asp Val Asn Ala Ser Phe Arg Ala

35

40

45

Ala Met Ala Thr Thr Ala Asn Val Pro
50 55

10

33